"Dedicated to Public Service"

THE RADIATOR

Chico Golden Empire Amateur Radio Society, Inc.

SPECIAL SERVICE CLUB

W6RHC
IRLP #8170

www.gearsw6rhc.org

P.O.Box 202 Chico, CA 95927

December 2021 Newsletter	GEARS Founded August 13, 1939

At our November meeting, Margie Wolske KJ6SEV donated $200 to GEARS in memory of her husband Stephen KF6HSS who became a silent key this past month.

Our GEARS meeting on December 17th will be our Christmas meeting. You can bring a snack to share and a gift of $10 or less for the gift exchange. Both the food and gifts are optional.

Also at the December meeting we will hold the election of GEARS officers for 2022.

COVID is still a concern in the area. Due to abundance of caution we ask that only vaccinated people attend GEARS indoor events such as breakfast or meetings.

GEARS will hold an auction at our February meeting, start saving up as we will have some great equipment available.

Dues are due by the end of the year. You can pay by PayPal http://paypal.me/w6rhc at a meeting or mail. I've included a membership form, please submit if any of your information has changed. Dues are $20 standard membership or $30 for supporting members, $100 for Century Members (these are members who would like to offer extra support.) You may also make a donation to our repeater fund.

Wishing everyone a very Merry Christmas and a happy and healthy New Year.

'73
Jim Matthews K6EST
jiminchico@yahoo.com
530-893-3314

Join GEARS on Facebook www.facebook.com For timely news and additional information.

December 2021 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5 2pm VEC Testing Chico 8pm OARS Net	6 7pm GARS Net 8pm ARES Net	7 7pm PARS Net 7:30pm GEARS Net	8	9 7:30pm Simplex Net	10 7pm OARS meeting 7pm GARS meeting	11 9am Chico Breakfast
12 8pm OARS Net	13 7pm GARS Net 8pm ARES Net	14 7pm PARS Net 7:30pm GEARS Net	15	16 7:30pm Simplex Net	17 7pm GEARS Meeting	18
19 8pm OARS Net	20 7pm GARS Net 8pm ARES Net	21 7pm PARS Net 7:30pm GEARS Net	22	23 7:30pm Simplex Net	24	25 
26	27 7pm GARS Net 8pm ARES Net	28 7pm PARS Net 7:30pm GEARS Net	29	30 7:30pm Simplex Net	31	

VEC Testing, FCC License Exam available by appointment. For information or registration call Tom Rider, W6JS 530-514-9211
Chico Breakfast 2nd Saturday 9am Farmers Skillet Cohasset Rd, Chico
GEARS Board Meeting 1st Monday 7pm by zoom.
PARS Meeting 2nd Thursday 6:30pm, doors open 6pm Old Magalia Community Resource Center
OARS Meeting Second Friday of the month
GARS Meeting Second Friday of the month
Butte ARES Meeting 3rd Tuesday, TBD Contact Dale Anderson, KK6EVX 826-3461 for more information.
GEARS Meeting, 3rd Friday of the month, Eyeball QSO 6pm, meeting at 7:00 pm. Search & Rescue Building
OARS Breakfast 4th Saturday of the month

NETS:
OARS Club Net Sunday 8pm 146.655 Mhz - PL 136.5
GARS Club Net Monday,7:00 pm 147.105 MHz + PL 110.09
Butte ARES Net Mondays 8pm 145.290 MHz - PL 110.9
Yuba Sutter Club Net Monday 7pm 146.085 MHz + PL 127.3
GEARS Club Net Tuesdays 7:30 PM 146.850 MHz - PL 110.9
PARS Club Net Tuesday 7pm 145.290 - PL 110.9
Simplex Net Thursday 7:30 p.m. 146.52 no tone
Yuba Sutter ARES Net Thursdays 7pm 146.085 MHz + PL 127.3
Sacramento Valley Traffic Net Nightly 9:00 PM 146.850 MHz - PL 110.9

GEARS Century Members

Dale Anderson Kent Hastings
Bennett Laskey Tony Nasr Scott Roberts
We thank these members for their extra support.

Build a corner reflector

By VE3RGW & N7OVR

Do you need a high gain antenna? Have you suffered from picking up interference from unwanted directions? You need a directional antenna but a 12 element Yagi won't be too attractive! Well, the following might be the answer - a corner antenna. It can provide a forward gain of about 12dbi with a front to back ratio of well over 20dbi.

This design is a periodic plane spaced behind a radiating dipole. The critical factors are the corner angle and the spacing between dipole/vertex (fold point of reflector). The curves in fig.A show that as angle is reduced, the gain becomes progressively greater.

At the same time the feed impedance of the antenna falls towards a lower value and starts creating difficulty in matching. In practice this angle is usually at 90 degree or 60 degree while 90 degree is easier to be matched although gain is lower.

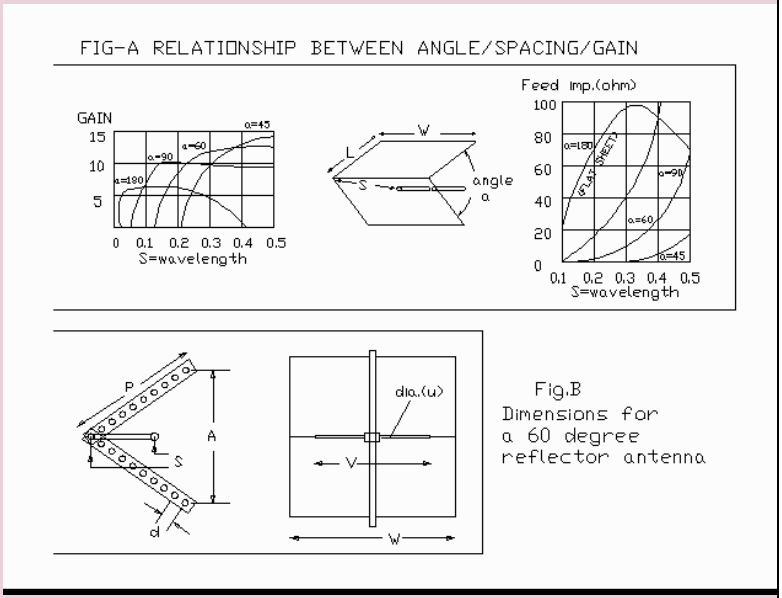


Fig.B
Dimensions for
a 60 degree
reflector antenna

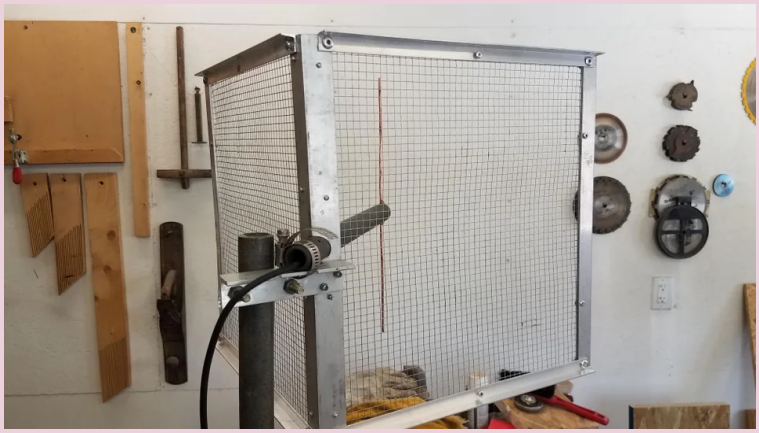
Following are some key points when designing such antenna :

Length (L) of the sides of the reflector should exceed 2x wave-length to secure the characteristics. Reflector width W should be greater than 1x wave-length for a half-wave radiator.

The reflector can be made of wire mesh, sheet metal or even fabricated metal spines arranged in a V-formation. Such spines must be parallel to the radiator with a spine spacing of less than 0.1 wave-length of the operating frequency.

Spacing between radiator and vertex should be adjustable. This might be the final key to tune-up such an antenna after radiator length is settled for a specific operating frequency.

Band	p	s	d	v	w	A	u
144	100	40.0	6	38	50	100	0.375
440	34	13.0	1.4	13	20	34	0.25
435	35	13.5	1.5	13	20	35	0.25



Impedance of these antennas will change upon operating frequency. Typical value will be around 50 ohm to 75 ohm. A slightly higher S.W.R (1.7:1) has to be expected on the lower end of the band. Fig.A also shows the relationship between resultant impedance and a change in wavelength (frequency). The table shows the general dimension of such antennas at UHF and VHF bands. All values below are in inches (except Band in MHz). Final dimension might vary due to differences in materials employed. Try and error is the key to success.

Made this one from stuff I had lying around. Fed it with RG58. N7OVR

Connecting with strangers over ham radio cleared my family's static

Going analog boosted my marriage's reception during a year of pandemic isolation.

By Gabriella Gage

On a rainy October night during the pandemic, my husband, David, searches for a faint voice in the distance. He doesn't know who's calling, but he knows he wants to speak to them. David adjusts the tuning knob on the decades-old transceiver ever so slightly, as if cracking a safe. Outside, a homemade antenna bobs in the wind. On his computer, pulsating lines tell him the voice is one of hundreds calling out on this busy night. The voice gets clearer: "CQ," the magic letters he's been awaiting — the amateur radio operators' invitation for a response — followed by a call sign. David jumps on his mic, repeating the stranger's call sign and adds: "This is KB1TOY, Kilo-Bravo-1-Tango-Oscar-Yankee. You're light but I can hear you!"

After months of troubleshooting, David has made a new contact: Emilio, a truck driver and self-described cowboy in his early 40s, located in a commune in rural southern Italy. They quickly exchange personal information, knowing that any minute they might lose each other. For David, it's a distance record — a new high. A new human connection, rare in these pandemic days, made an ocean away without leaving our Somerville apartment. Our family celebrates.

We are not alone. The global pandemic has brought a renewed interest in amateur, or "ham," radio, a nostalgic pastime long overshadowed by the Internet, social media, and cell phones. Longtime enthusiasts and newbies like David flocked to their radios for community, distraction, and vital pandemic information.

"We've noticed general and event-related activity are both up," says Bob Inderbitzen, spokesperson for the American Radio Relay League (ARRL), the national association for amateur radio in the United States. Its membership of licensed ham radio operators numbers 779,531 — a total that grows by upwards of 30,000 annually. "People have turned to amateur radio more and more as a way of varying communication with the world," says Inderbitzen, whose call sign is NQ1R. March 2021 saw the largest monthly cohort of new licensees in the last decade — 4,397 — and licenses are up by 35 percent this year over 2019.

Amateur radio offers something uniquely appealing in the age of COVID-19 isolation: the chance to connect in real time with strangers around the world while honing a technical skill that's handy during global health crises and natural disasters.

In many ways, crises are what ham was built for. The Federal Communications Commission grants ham radio operators in the United States special access to airwaves that can also be used for emergency response efforts. Radio can be lifesaving in areas prone to natural disasters, such as Florida, Puerto Rico, and Indonesia. During pandemic lockdowns, England's National Health Service partnered with the Radio Society of Great Britain to spread public safety messages and promote wellness checks on hams, many of whom are older.

ARRL's Inderbitzen says ham radio has historically attracted two kinds of people: those with an affinity for electronics and gadgets, and those looking for public service and community-building opportunities. David falls somewhere between the two.

Prior to the pandemic, he counted on hobbies that involved risk— riding motorcycles through deserts, sailing boats across the Atlantic, racing cars at tracks — to challenge himself and make new friends. The storm more than the port has always been where he found refuge in times of crisis — flirting with danger helps him de-stress. During the pandemic, however, David struggled in the privileged monotony of isolation at home as a new dad and computer programmer. Without travel or a creative outlet, and as the hours online and time caring for our baby blurred together, he retreated from our tight, loud quarters to our dark, unfinished basement and worked longer days than ever. He was burned out and increasingly disconnected from our little family.

David discovered ham by chance on YouTube early in the pandemic. Its many new digital applications, such as one called “moonbounce,” which permits earth to moon and back to earth radio transmissions, appealed inherently to the adventurer in him. He couldn’t tear across a desert on a motorcycle, but he could travel in a whole new way.

It wasn’t long before an imposing copy of “Practical Antenna Handbook” replaced the travel books on David’s nightstand. There were frequent late-night trips to Home Depot. Spools of copper wire glinted around the house. He began using the NATO alphabet to spell things for our toddler — Alpha, Bravo, Charlie. . . . David had embarked on what Inderbitzen calls “the journey of discovery.”

“It’s all about learning about radio communications, improving your station and technical skills, and pushing those boundaries so you’re heard farther away,” says Inderbitzen, who first discovered ham as a middle schooler before making a career out of it.

In a twist for a traditionally analog medium, the pandemic brought testing for licensing online. After weeks of studying, David passed his general class operator exam — there are three license levels, offering successively greater access to the airwaves. He did it on Zoom from our bathroom, the only room small enough to show he was alone at all times and thus could not be cheating.

Increased availability of inexpensive equipment has also made ham more accessible — a modest portable station can be created with a laptop and under $50 worth of additional equipment.

A QSL card sent to the author's husband from a ham in Long Branch, N. J. GABRIELLA GAGE
David dedicated weekends to devising new antennas for our “home station” — his new name for the once-dreary basement — and modeled them for our delighted daughter, a fan of all things remotely “robot.” In order to attach the antenna that would improve the station’s signal in a dense city rife with interference, we took turns launching coaxial cable into the trees above our house with a slingshot. The antennas also strengthened another connection: the one to our family life. David relished having a challenging hobby he could share with us at home.

Ham even scratches David’s competitive itch: He discovered “contesting,” when amateur radio stations try to contact and exchange information with as many stations as possible in a given period of time.

In an age of machine-to-machine connectivity, David found the thrill of new discovery, technical challenge, and global escape he craved. He’s connected with hams in nearly every state and in dozens of countries, including Ghana, Ukraine, Kuwait, and Panama. And now, without leaving Boston, we’ve collected QSL cards — written or digitized confirmations of two-way communication, often designed around the operator’s unique call number — from fellow hams around the world.

In the end, it wasn’t the next great technology or ham’s increasingly popular digital modes but old-school analog radio — the unfiltered voices of real humans crackling somewhere in the distance — that helped David find his way back to us in the storm. Talking to strangers improved our communication with each other, too.

And now, as the prospect of actual travel looms, we have new friends to meet all over the world.

Gabriella Gage is a writer in Somerville. From The Boston Globe May 2021.

Club Officers:

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